

NEONATAL TETANUS IN WARRI NIGER DELTA: A TEN YEAR RETROSPECTIVE STUDY

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ABSTRACT

Neonatal tetanus remains a very major cause of morbidly and mortality in the newborns in Nigeria. Despite the UNICEF and WHO goal of eliminating neonatal tetanus by the year 2005, Nigeria is one of the ninety four countries where this has remained impossible. Infact this retrospective study in Warri Niger Delta shows an increase in the incidence since 2005. The possible reasons have been advanced in the body of the study. The morbidity and mortalities have also been documented. The review covers a period from 1999 to 2008

INTRODUCTION

Neonatal tetanus is one of the major causes of neonatal and under-five mortality in the developing countries. (Vandelaer *et al.*, 2003) It accounts for about 20% and 25% of all neonatal mortality worldwide and Nigeria respectively. (Lawn J *et al* 2005, Okolo *et al* 1985, Njokanma *et al.*, 1995). This is so because of inadequate routine immunization coverage and the practice of using unclean procedures to cut the umbilical cord after birth. (UNFPA/UNICEF/WHO, 2005). The 1989 World Health Assembly set a goal to eliminate neonatal tetanus globally by 2000 (definition of elimination: <1 case per 1000 live birth in each health district in the country) (UNFPA/UNICEF/WHO 2005, WHO, 2004). By December 1999, 104 out of the 161 developing countries have achieved elimination but due to problems in the remaining countries including Nigeria, UNICEF, the WHO and the United Nation Population Fund (UNFPA) agreed a new five-year strategic plan, setting the year 2005 as target date for worldwide elimination. (UNFPA/UNICEF/WHO 2005). Though there may be decline in the incidence of neonatal tetanus in some countries especially with better surveillance, (UNFPA/UNICEF/WHO 2005) our experience in Warri Niger Delta of Nigeria has shown otherwise. We present a ten year review of neonatal tetanus in Warri Niger Delta of Nigeria from 1999 to 2008.

MATERIALS AND METHODS

The study was done in Central Hospital Warri a government hospital and GN children's and Gen Med Clinic a private hospital in Warri. All the case notes of patients with neonatal tetanus from January 1999 to December 2008 were reviewed and analyzed. Information obtained from the case notes include age, sex of the newborn, presenting symptoms, perinatal records (mode and place of delivery and procedures during delivery etc) onset of symptoms and onset interval, duration of illness before presentation, portal of entry of the tetanus, immunization status of the mother (has she completed T1-5 or Tetanus toxoid in the pregnancy of the patient etc), social background (occupation of parents, place of domicile) birth order of the child, any treatment given before presentation. The management of the child in the hospital and end point of the illness: whether the child survived without/with complications or died was also noted. Follow up treatment for each patient was also documented. The number of patients per year was also noted

RESULTS

A total of sixty nine neonates were seen over this period in both hospitals. Forty of them were males and twenty nine females, giving a male: female ratio of approximately 1.8:1 Table 1 shows the number of neonates per year.

TABLE 1 SHOWING DISTRIBUTION PER YEAR

YEAR	NUMBER
1999	8
2000	7
2001	6
2002	5
2003	5
2004	5
2005	7
2006	8
2007	9
2008	9

There was a steady decline in the incidence from 2000 to 2004, but this started rising from 2005.

Table 2 shows the portal of entry of the clostridia organisms.

TABLE 2: SHOWING THE PORTAL OF ENTRY

PORTAL OF ENTRY	NUMBER
UNMBLICAL CORD	49
SCAEIFICATIONS	8
CIRCUMCISSION	5
UNKNOWN	7
TOTAL	69

Over 70% of cases were through the umbilical cord. The second most common portal entry is from scarification marks on the child's body for whatever reason. In about 10% of the cases the portal of entry was not know. Forty of the neonates were males and twenty nine females, giving a male: female ratio of 1.8:1. This is shown in table 3

TABLE 3: SHOWING THE MALE TO FEMALE RATIO

MALES	FEMALES
40	29

Of the sixty nine patients, fifty one of them had their prenatal care and delivered at home giving a per centage of 73.9%. This is shown in Table 4

TABLE 4: SHOWING PLACE OF PRENATAL CARE/ DELIVERY

PLACE OF PRENATAL CARE/ DELIVERY	NUMBER
HEALTH FACILITY	18
HOME/CHURCHES	51

The treatments given generally include antitetanus serum (ATS) 10, 000IU. 5000IU was given intramuscularly and 5000IU by intravenous infusion. Diazepam was given either intravenously or rectally every six hours, while phenobarb or chlorpromazine was also given six hourly. These sedatives were staggered in such a way that the child received a sedative every three hours. Paraldehyde was given for breakthrough seizures. Ceftazidime and gentamicin were given especially when sepsis is a strong differential diagnosis. Adequate hydration was ensured and hypoglycemia was also prevented. Spasms were monitored with spasm charts. Those that survived were all immunized before discharge.

Of the sixty nine patients, twenty eight died, giving a mortality rate of 40.6%. Twenty of the deceased neonates were males and eight females, giving a mortality rate of 71.4% males and 28.6% females. The case fatality rate for males is 50% and 27.6% for females. These are shown in table 5.

TABLE 5 SHOWING THE MORTALITY RATE AND CASE FATALITY RATE ACCORDING TO SEX

SEX RATIO	MORTALITY	CASE FATALITY
MALE	71.4%	50%
FEMALES	28.6%	27.6%

Table 6 shows the various complications and their per centage of the total. Eight out of the surviving forty one had complications, giving a per centage of 20%. Of this, five (62.5%) had cerebral palsy, while 2 (25%) had deafness and one (12.5%) had mental retardation.

TABLE 6 SHOWING THE COPLICATIOIS OF THE SURVIVING NEONATES

COMPLICATION	NUMBER	% OF TOTAL
CEREBAL PALSY	5	62.5%
DEAFNESS	2	25%
MENTAL RETARDATION	1	12.5%

These are being followed up by the various specialists including the otorhinolaryngologist. The causes of death as shown in Table 7 are apnea 60%, uncontrollable spasms 15%, hyperpyrexia 10% and hypoglycemia 5%. In about 10%, the cause of death was not identifiable.

TABLE 7: SHOWNING THE CAUSES OF DEATH

CAUSE OF DEATH	PER CENTAGE
APNOEA	60%
UNCONTROLLABLE SEIZUERS	15%
HYPERPYREXIA	10%
HYPOGLYCAEMIA	5%
UNKNOWN	10%

DISCUSSION

Our findings have shown that neonatal tetanus is on the increase. This is in keeping with the observation that tetanus is generally in the increase in Warri and not just neonatal tetanus. (Mcgil Ugwu *et al* 2009). Infact Orumabo et al asked the question 'Does Neonatal Tetanus still pose a threat to neonatal survival?' (Orumabo, 2007). The mortality rate of 40% is in keeping with the findings in other parts of Nigeria.(Akani *et al* 2004, Eregie *et al* 1994, Oyedeji *et al* 1982) and Turkey (Quddus *et al* 2002), but lower than that in the Unites States of America (Bardenheier *et al* 1998). Nigeria is one of the twenty seven countries which account for over ninety per cent of the global burden of neonatal tetanus (Akani 2004). While a remarkable decrease in the incidence of neonatal tetanus has been noted in some areas, (Bunyamni *et al* 2008) we observed an increase as from 2005 after an initial decline. The increase in the incidence is probably due to the political acts of announcing free maternal health services without adequate back up with resources. The supply of Tetanus toxoid in Warri health facilities has not been steady. Moreover, the power supply to the area has been so epileptic, coupled with shortage of petroleum products to even fuel generators, making storage of these vaccines and sustenance of the cold chain difficult. This makes the available vaccines less potent. Other reasons for persistence of neonatal tetanus have been advanced, include declining maternal coverage with tetanus toxoid and delivery by unskilled personnel.(Akani *et al* 2004) Most of our patients were delivered at home or churches where proper antenatal and postnatal care is lacking. This is similar to the experience in Ile-Ife where out of the 74.6% of women who claimed to have received tetanus toxoid in pregnancy, it was confirmed in only 4.1% and only in 2.8% could the babies be said to have been protected from neonatal tetanus, again, most of the deliveries of the patients with neonatal tetanus were at home and in churches.(Owa *et al* 1992) The mortality rate was highest when the onset interval is less than forty eight hours. This was compounded with the fact that some of the patients had scarification marks as treatment for the convulsions, thereby worsening the case. Our experience shows that more males were affected with even a higher case fatality ratio which is keeping with the view worldwide. (Orumabo 1996, Aseku.Olminoye 2003, Eriten M 2004 Grange *et al* 1991) Upto 60% of our deceased patients were from the riverine areas of Warri without adequate transport facilities. Of the surviving ones, 20% of them had complications James 1987) which are similar to the observations in Nigeria and worldwide This has been attributed to apnoea due to prolonged spasm which leads to brain damage.(James 1987)

CONCLUSION

Neonatal tetanus remains a scourge in developing countries. It will continue to increase if the power problem in Nigeria is not solved. Moreover there is no point in announcing free health services without a compensatory increase in the health budget of the states in Nigeria. The T1-5 tetanus toxoid immunization should be started during the school age and made part of a comprehensive school health services program. This will greatly improve tetanus toxoid immunization coverage in women. Traditional birth attendants and the church 'midwives' should be taught to immunize pregnant women since most of the cases come from them.

ACKNOWLEDGEMENT.

We wish to thank Lady Ugwu sincerely for her immense contributions.

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Received for Publication: 15/01/10

Accepted for Publication: 10/02/10

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